

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Canceled)
8. (Canceled)

9. (Currently Amended) A method for transmitting digital information in a data communication system comprising:

~~Comprising:~~\_\_\_\_\_

providing an input data sequence;  
converting the input data sequence into an input symbol sequence;  
multiplying the input symbol sequence by a non-orthogonal over-determined transmission matrix to produce a transmit symbol sequence;  
modulating and up-converting the transmit symbol sequence using a modulator and up-converter;  
transmitting the transmit symbol sequence in response to the modulating and up-converting;  
receiving said transmit symbol sequence;  
down-converting and demodulating said received symbol sequence;  
excising corrupt symbols in the received symbol sequence in response to the downconverting and demodulating to produce a truncated received symbol sequence and excised corrupt symbols;  
creating an inverse recovery matrix based on said excised corrupt symbols;  
multiplying the truncated received symbol sequence by the inverse recovery matrix to produce an output symbol sequence;  
converting the output symbol sequence into an output data.

10. (Currently Amended) A method for transmitting digital information in a data communication system comprising:

~~Comprising:~~\_\_\_\_\_

providing an input data sequence;  
converting the input data sequence into an input symbol sequence;  
multiplying the input symbol sequence by a non-orthogonal over-determined matrix to produce an intermediate transmit symbol sequence;  
converting the intermediate transmit symbol sequence with an inverse Fourier transformer to a transmit symbol sequence;  
modulating and up-converting the transmit symbol sequence;  
transmitting the transmit symbol sequence in response to the modulating ~~modulation~~ and up-converting;  
receiving a received symbol sequence responsive to the transmitting;

down-converting and demodulating the received symbol sequence;  
converting the received symbol sequence with a Fourier transformer to frequency domain symbols in response to the down-converting and demodulating;  
excising corrupt symbols in the frequency domain symbols to produce excised symbols;  
creating a recovery matrix based on said excised symbols;  
multiplying the frequency domain symbols by the recovery matrix to produce an output symbol sequence;  
converting the output symbol sequence into an output data;

11. (Currently Amended) A method for transmitting digital information according to claim ~~2~~ 10 further comprising a step of adding a guard interval to said frequency domain symbols before the transmitting step.

12. (Currently Amended) A method for transmitting digital information according to claim ~~2~~ 10 further comprising a step of combining frequency domain symbols after the step of excising.

13. (New) A method for transmitting digital information according to claim 9 further comprising a step of inserting an identity matrix into said non-orthogonal over-determined transmission matrix.